

*New Taxa***Two new species of *Murexsul* (Gastropoda : Muricidae) from Australia***Roland Houart*

Institut royal des Sciences naturelles de Belgique, rue Vautier, 29, 1000 Bruxelles, Belgium.

Email: roland.houart@skynet.be

Abstract

Murexsul asper n. sp. is described from Western Australia and is compared with *M. auratus* Kuroda & Habe, 1971 from Japan; *M. queenslandicus* n. sp. is described from Queensland. Both new species lie in a group of small species, including *M. charcoti* (Houart, 1991) and *M. micra* (Houart, 2001), from New Caledonia.

Introduction

Few recent studies have been made on small Australian muricids and consequently this fauna is poorly known. This is highlighted by the Muricidae in the collection of the Australian Museum, Sydney, in which several little known or unknown species were found (Houart 1998; Houart 2004). Among these were two species belonging to a group of species previously studied by Merle and Houart (2003), many of which have been classified in *Muricopsis* (*Murexsul*) or in *Murexsul* s.s. by Houart (1988, 1991, 1993, 1994, 2001a,b).

No radula was available for *M. asper* n. sp. because the material was collected dead, but a comparison with related species for which the radula morphology is known, together with the peculiar shell morphology of the species, leave no doubt about its current classification in Muricopsinae.

Material and methods

All material examined is at AMS, and consists of dead shells, unless specified.

Terminology (following Merle 2001; Figs 11, 12)

The terminology used here is occasionally put between parentheses, meaning that the character was observed in a few cases but not in all specimens.

abis	Abapical infrasutural secondary cord (shoulder)
IP	Infrasutural primary cord (primary cord on shoulder)
P1	Shoulder primary cord
P2–P6	Primary cords of convex part of teleoconch whorl
s1–s6	Secondary cords
ADP	Adapical siphonal primary cord
L	Length
W	Width
LA	Length of the aperture
LC	Length of the siphonal canal

Other abbreviations

AMS	Australian Museum, Sydney, Australia
HMAS	His/Her Majesty Australian Ship
IRSNB	Institut royal des Sciences naturelles de Belgique, Bruxelles, Belgium

- MNHN Muséum national d'Histoire naturelle, Paris, France
QM Queensland Museum, Brisbane, Australia
WAM Western Australian Museum, Perth, Australia

Systematics

Family **MURICIDAE** Rafinesque, 1815

Subfamily **MURICOPSINAE** Radwin & d'Attilio, 1971

Genus *Murexsul* Iredale, 1915

Murexsul Iredale, 1915: 471. Type species: *Murex octogonus* Quoy & Gaimard, 1832 (original designation).

Murexsul asper n. sp.

(Figs 1–3, 13; Table 1)

Material examined

Holotype. Western Australia, Great Australian Bight, 33°20'S, 128°45'E, 140–147 m (AMS C.427056) (ex C.322392).

Paratypes. **Western Australia**: Great Australian Bight, 33°20'S, 128°45'E, 140–147 m, HMAS 'Gascoyne', 5 July 1962 (4, AMS C.322392); Great Australian Bight, 33°5'–33°20'S, 128°40'–128°45'E, 75–147 m, HMAS 'Gascoyne', 5 July 1962 (3, AMS C.323254) (1, WAM S 13775, ex AMS C.323254); Great Australian Bight, 33°5'S, 128°45'E, 75–147 m, HMAS 'Gascoyne', 5 July 1962, (1, coll. R. Houart, ex AMS C.323252).

Description

Shell small for the genus, up to 8.6 mm in length at maturity (paratype C.322392, Table 1), white, lanceolate, weakly nodose.

Spire high with two protoconch whorls and up to five convex, elongate, weakly shouldered teleoconch whorls, suture impressed. Protoconch large, whorls rounded, smooth (Fig. 3), terminal varix heavy, raised, weakly curved.

Axial sculpture of teleoconch whorls consisting of erratically placed, low or moderately high, weak or strong ribs. Last whorl with five moderately high varices with weak intervarical ridges or lamellae. Intersection of axial ridges and spiral cords giving rise to small nodes. Spiral sculpture of high, strong, primary and secondary cords. First whorl with visible IP, P1 and P2, second whorl with IP, P1, P2, P3, third with IP, P1, P2, s2, P3, starting s1 at the end of the whorl, fourth whorl with IP, P1, s1, P2, s2, P3, fifth with IP, abis, P1, s1, P2, s2, P3, P4, P5 (probably), s5 (probably), P6, ADP.

Aperture large, roundly-ovate, columellar lip broad, smooth, rim partially erect, adherent at adapical extremity, anal notch not visible in studied specimens. Outer lip weakly erect, smooth within. Siphonal canal moderate in length for the genus, broad, straight, open.

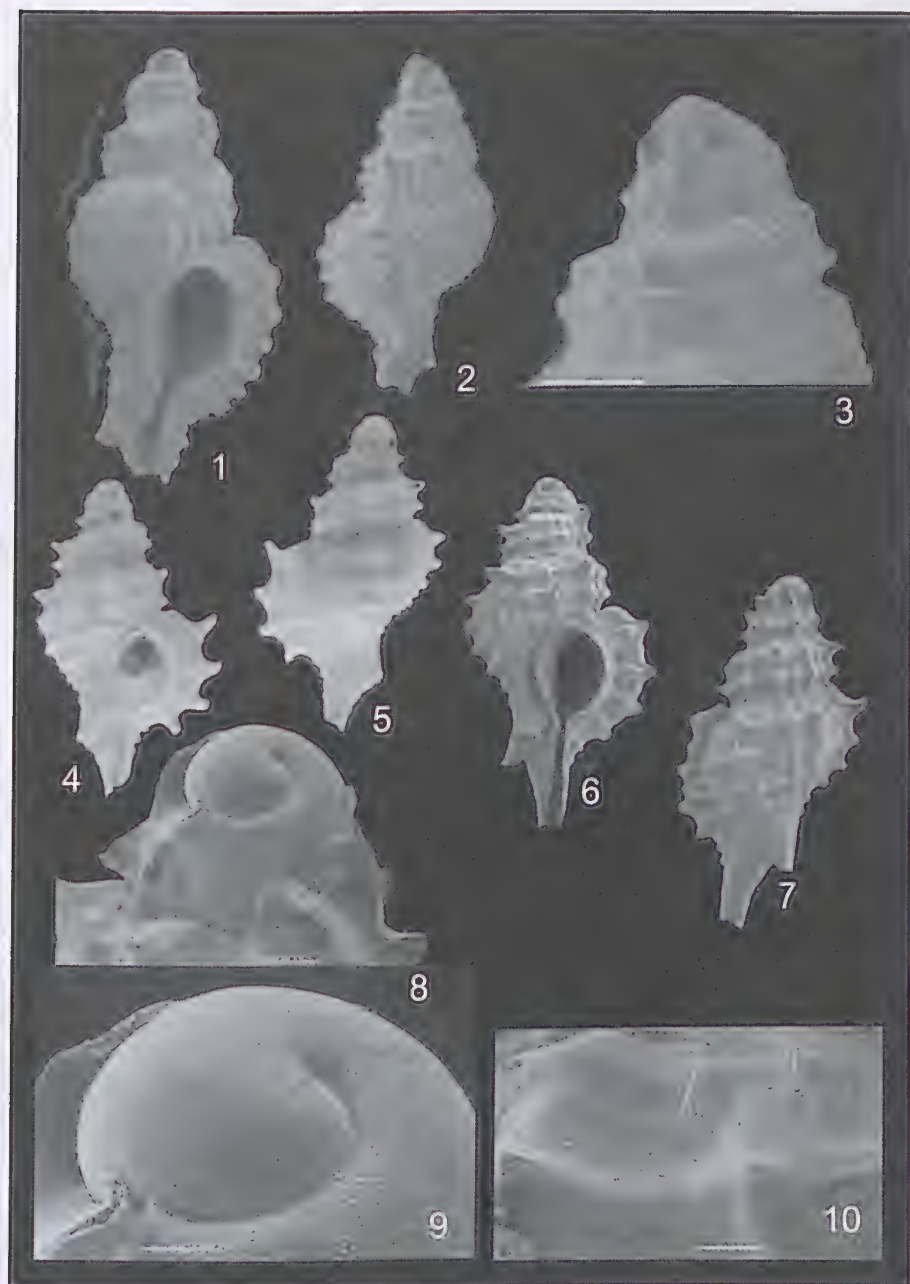
Operculum and radula unknown.

Distribution

Western Australia, 33°20'S, 128°45'E, 75–147 m.

Remarks

One species, *Murexsul auratus* Kuroda & Habe, 1971 (Figs 15, 16), most closely resembles *M. asper*, but has a higher spire, a shorter siphonal canal, broader, more obvious spiral cords



Figs 1–10. 1–3, *Murexsul asper* n. sp., Western Australia, Great Australian Bight, 33°20'S, 128°45'E, 140–147 m (uncoated s.e.m.): 1, holotype (AMS C.427056, ex C.322392) 7.5 mm; 2–3, paratype (AMS C.322392), 6.0 mm. 4–10, *Murexsul queenslandicus* n. sp. Australia, Queensland, SE of Swain Reefs, 22°26.27'–22°20.2'S, 153°17.13'–152°17.6'E: 4–5, holotype (AMS C.427057, ex C.321900) 4.3 mm; 6, paratype (AMS C.321900), 4.3 mm (gold coated for s.e.m.); 7, paratype (AMS C.321900), 4.5 mm (gold coated for s.e.m.); 8–10, paratype (AMS C.321900) (gold coated for s.e.m.). 8, protoconch; 9, detail of the protoconch; 10, detail of teleoconch spiral sculpture (scale bars: 3, 500 µm; 8, 200 µm; 9, 10, 100 µm).

Table 1. Shell measurements (mm) of *Murexsul asper* n. sp.

Specimen	L	W	LA	LC
Holotype AMS C.427056	7.5	3.9	2.1	1.7
Paratype AMS C.322392	6.0	3.0	1.6	1.5
Paratype AMS C.323254	6.5	3.1	1.9	1.3
Paratype AMS C.323254	7.3	3.6	2.0	1.6
Paratype AMS C.322392	8.6	Partially broken		
Paratype AMS C.322392	6.1	Partially broken		
Paratype WAM S13775	5.8	2.9	1.6	1.2
Paratype R. Houart	6.9	3.1	1.9	1.5
Mean	6.8	3.3	1.9	1.5

L, length; LA, length of the aperture; LC, length of the siphonal canal; W, width.

and more acute, short spines on the last whorl varices, and a more rounded, smaller aperture.

An unnamed species occurring off South Africa (coll. D. Meyer and Natal Museum) (Fig. 17) resembles the new species and could be the same, although more material is needed before a more definite comparison can be made.

Etymology

Asper (Latin): rough, uneven. For the uneven spiral sculpture.

Murexsul queenslandicus n. sp.

(Figs 4–12; Table 2)

Material examined

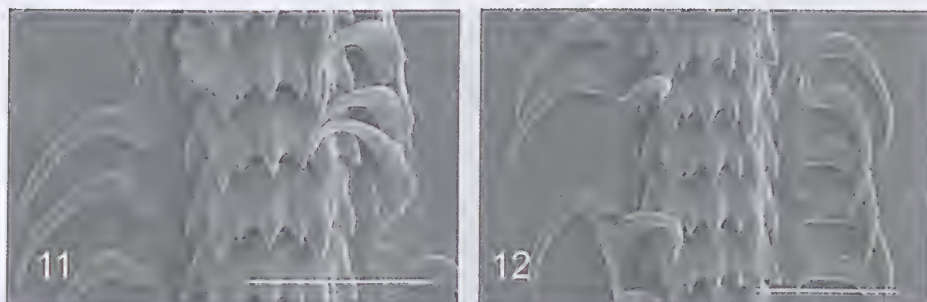
Holotype. Queensland, SE of Swain Reefs, 22°26.27'–22°20.2'S, 153°17.13'–152°17.6'E, 187 m (AMS C.427057, ex C.321900).

Paratypes. **Australia, Queensland:** SE of Swain Reefs, 22°26.27'–22°20.2'S, 153°17.13'–152°17.6'E, 187 m, HMAS 'Kimbla', 5 July 1984, stn 7 (1, AMS C.321906); 22°26.27'–22°20.2'S, 153°17.13'–152°17.6'E, 187 m, HMAS 'Kimbla', 5 July 1984, stn 7 (79, AMS C.321900) (2 gold coated for s.e.m.), (2, QM MO 72376), (2, IRSNB IG 29980), (2, MNHN), (2, coll. R. Houart, all ex AMS C.321900); alive and dead; Capricorn Channel, 23°8.6'S, 152°16.6'E, 155 m, HMAS 'Kimbla', stn 21 (2, AMS C.321953).

Description

Shell small sized for the genus, up to 4.5 mm in length (Table 2), white, broadly biconical, spinose, nodose. Spire high with one protoconch whorl, and up to three broad, strongly angulate, spinose teleoconch whorls; suture impressed. Protoconch large, broad, whorl rounded, with rows of minute, raised granules on second part of protoconch (Figs 8, 9), terminal varix thin, weakly raised and curved.

Axial sculpture of teleoconch whorls consisting of lamellae, ribs and varices: first whorl with seven or eight lamellae, second with four varices, third with three or four varices and three, or occasionally two, intervarical ribs. Spiral sculpture of high, strong, smooth, primary and secondary cords: visible part of first whorl with IP, P1, P2; second whorl with IP, P1, P2, P3, P4, (s4), P5, (P6); third whorl with IP, P1, s1, P2, (s2), P3, P4, s4, P5, P6. P1–P4 ending as short, blunt, open spines on varices, more apparent on apertural varix.

Figs 11–12. Radula of *Murexsul queenslandicus* n. sp. (scale bars: 12 μ m).Table 2. Shell measurements (mm) of *Murexsul queenslandicus* n. sp.

Specimen	L	W	LA	LC
Holotype AMS C.427057	4.3	2.5	1.0	1.2
Paratype MNHN	4.0	2.7	1.0	0.9
Paratype MNHN	4.0	2.5	1.1	1.0
Paratype IRSNB IG 29980	4.0	2.3	1.0	1.1
Paratype IRSNB IG 29980	4.1	2.6	1.2	0.9
Paratype R. Houart	4.5	2.6	1.1	1.3
Paratype R. Houart	4.0	2.4	1.0	1.1
Paratype AMS C.321900	4.6	2.7	1.1	1.1
Paratype AMS C.321900	4.0	2.5	1.0	1.2
Paratype AMS C.321900	4.4	2.6	1.1	1.2
Mean	4.2	2.5	1.1	1.1

L, length; LA, length of the aperture; LC, length of the siphonal canal; W, width.

Aperture small, roundly ovate; columellar lip broad, flaring, smooth, rim partially erect, adherent at adapical extremity. Anal notch shallow, narrow. Outer lip weakly erect, smooth within. Siphonal canal moderately long, straight, narrowly open, smooth.

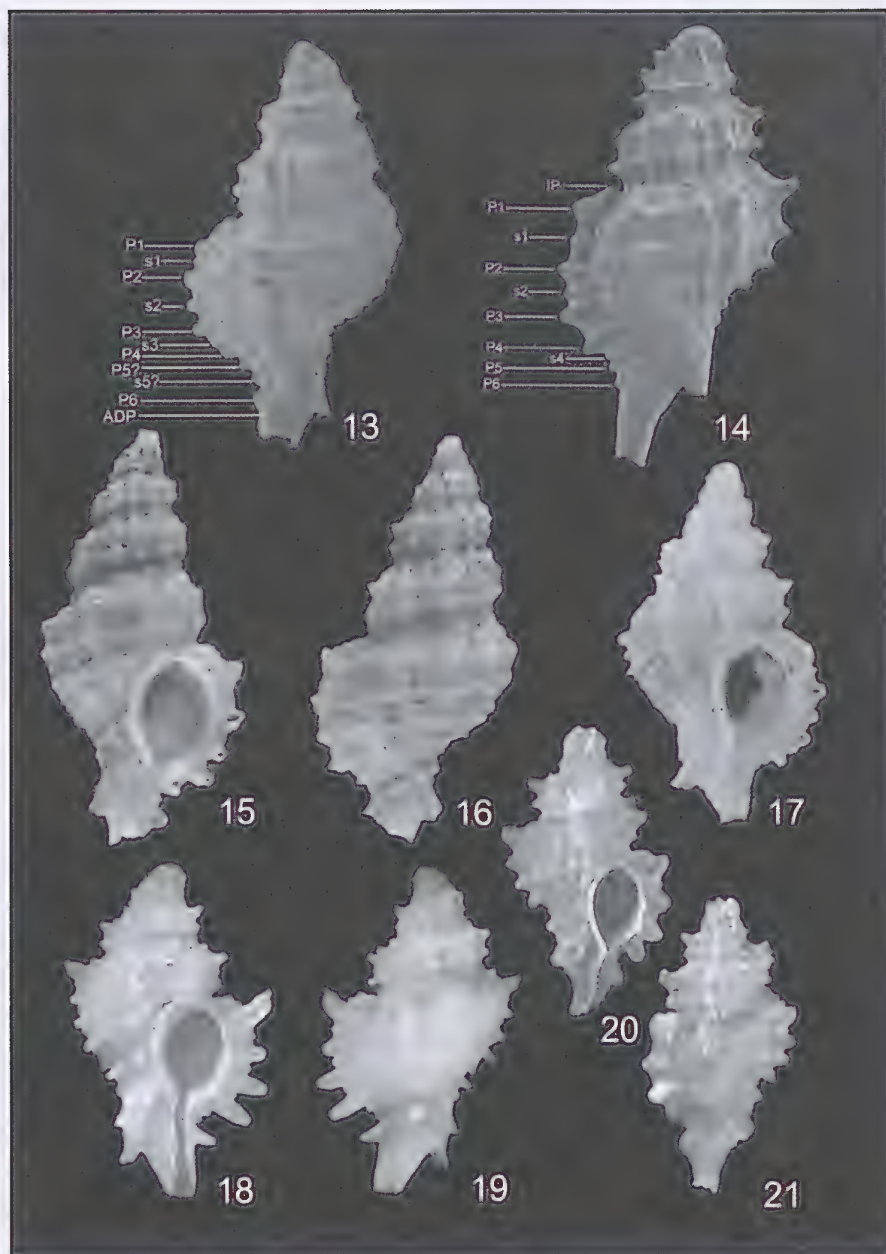
Radula (Figs 11, 12): rachidian with short, projecting median cusp, two short lateral denticles, two long lateral cusps with small outer lateral denticle, and two short marginal cusps; lateral teeth sickle-shaped, narrow.

Distribution

Australia, Queensland, SE of Swain Reefs and Capricorn Channel, in 155–187 m.

Remarks

Murexsul charcoti (Houart, 1991) (Figs 18, 19), from New Caledonia, is twice as long and broad for the same number of teleoconch whorls than *M. queenslandicus*; it also has a comparatively narrower apertural varix with broader and longer spines, lower and narrower axial ribs and different spiral sculpture consisting of P1, (s1), P2, P3, P4, P5 atrophied, P6 present or atrophied, on last teleoconch whorl. *Murexsul micra* (Houart, 2001; Figs 20–21), also from New Caledonia, differs from *M. charcoti* in its much smaller size and its different protoconch sculpture. It lives in much shallower depths, 20–35 m, compared with 394–450 m for *M. charcoti*. *Murexsul micra* differs from *M. queenslandicus* in having a



Figs 13–21. 13, *Murexsul asper* n. sp., paratype (AMS C.322392), 5.8 mm, morphology of spiral sculpture; 14, *Murexsul queenslandicus* n. sp., paratype (AMS C.321900), 4.5 mm, morphology of spiral sculpture (IP, infrasutural primary cord (primary cord on shoulder); P1, shoulder primary cord; P2–P6, primary cords of convex part of teleoconch whorl; s1–s5, secondary cords; ADP, adapical siphonal primary cord); 15–16, *Murexsul auratus* Kuroda & Habe, 1971, holotype (NSMT-MOR 9605), Japan, Sagami Bay, 7.6 mm; 17, *Murexsul* sp. Aliwal Shoal, 30–50 m, South Africa, 7.2 mm, coll. D. Meyer; 18–19, *Murexsul charcoti* (Houart, 1991), holotype (MNHN), 7.2 mm, New Caledonia, 22°47'S, 167°14'E, 440–450 m; 20–21, *Murexsul micra* (Houart, 2001), holotype (MNHN), 3.7 mm, New Caledonia, Grotte Merlet, 22°40.2'S, 166°37.9'E, 20–35 m.

narrower apertural varix with broader spines, a more ovate aperture with a narrower columellar lip, axial intervarical lamellae instead of ribs and spiral sculpture identical to *M. charcoti*.

These three taxa belong to a group of species distinguished from other *Murexsul* by their smaller shell with probable adults having less than five teleoconch whorls, and in having a broad, large protoconch of 1.0–1.5 whorls, indicating non-planktotrophic development.

Etymology

Queenslandicus: named after the Australian state, Queensland, where the type material was collected.

Discussion

Murexsul asper and *M. queenslandicus* both belong to a group of shells showing the assumed plesiomorphic condition of *Murexsul*, which comprises 19 Recent and fossil species from different parts of the world (Merle and Houart 2003). The plesiomorphic condition is assumed from the nature of the spiral sculpture (Merle and Houart 2003) determined from the condition in *M. prionotus* (Tate, 1888; Priabonian, Australia), which represents one of the oldest members of the genus (Merle 1999). The other Australian species included in that group are: *M. diamantina* (Houart, 1991), *M. planiliratus* (Reeve, 1845) and *M. purpurispina* (Ponder, 1972), but these species differ from the new species in shell length and other characters, especially in protoconch and spiral cord morphology.

Muricopsis asper has a reduced P5 spiral cord, a condition also seen in *Rolandiella* Marshall & Burch, 2000. However, *Rolandiella* differs also from *Murexsul*, in several characters not observed in *M. asper* and by the presence of a wider gap between the spirals P1 and P2.

Acknowledgments

I am most grateful to Winston Ponder and Ian Loch, Australian Museum, Sydney, for the loan of the material, and to Kazunori Hasegawa, Tskukuba Research Center, National Science Museum, Tokyo, for the loan of *Murexsul auratus*. Thanks also to Anders Warén, Natural History Museum, Stockholm, for preparation and s.e.m. work of the radula, to Julien Cillis, Institut royal des Sciences naturelles de Belgique, for s.e.m. work of the protoconch and shell, and to Arnaud Le Goff, Muséum national d'Histoire naturelle, Paris, for providing digital images of *Murexsul charcoti* and *M. micra*.

References

- Houart, R. (1988). Description of seven new species of Muricidae (Neogastropoda) from the South-Western Pacific Ocean. *Venus (Fukuyama-Shi, Japan)* **47**, 185–196.
- Houart, R. (1991). Description of thirteen new species of Muricidae (Gastropoda) from Australia and the New Caledonian region, with range extensions to South Africa. *Journal of the Malacological Society of Australia* **12**, 35–55.
- Houart, R. (1993). Three new species of Muricinae and Muricopsinae (Gastropoda: Muricidae) from Somalia, Christmas (Line Islands) and the Philippine Islands. *Venus (Fukuyama-Shi, Japan)* **52**, 41–46.
- Houart, R. (1994). 'Illustrated Catalogue of Recent Species of Muricidae Named since 1971.' (Hemmen: Wiesbaden, Germany.)
- Houart, R. (1998). Description of eight new species of Muricidae (Gastropoda). *Apex* **13**, 95–109.
- Houart, R. (2001a). 'A Review of the Recent Mediterranean and Northeastern Atlantic Species of Muricidae.' (Evolver: Roma, Italy.)

- Houart, R. (2001b). *Ingensia* gen. nov. and eleven new species of Muricidae (Gastropoda) from New Caledonia, Vanuatu, and Wallis and Futuna Islands. *Tropical Deep-Sea Benthos*, vol. 22. *Mémoires du Muséum national d'Histoire naturelle* **185**, 243–269.
- Houart, R. (2004). A review of *Gemixystus* Iredale, 1929 (Gastropoda: Muricidae) from Australia and New Zealand. *Novapex* Hors série **2**, 1–27.
- Iredale, T. (1915). A commentary on Suter's 'Manual of New Zealand Mollusca'. *Transactions of the New Zealand Institute* **47**, 417–497.
- Merle, D. (1999). 'La radiation des Muricidae (Gastropoda: Neogastropoda) au Paléogène: approche phylogénétique et évolutive.' (Thèse de doctorat du Muséum national d'Histoire naturelle: Paris.)
- Merle, D. (2001). The spiral cords and the internal denticles of the outer lip in the Muricidae: terminology and methodological comments. *Novapex* Hors série **2**, 69–91.
- Merle, D., and Houart, R. (2003). Ontogenetic changes of the spiral cords as keys innovation of the muricid sculptural patterns: the example of the *Muricopsis*–*Murexsul* lineages (Gastropoda: Muricidae: Muricopsinae). *Comptes Rendus Palevol* **2**, 547–561. doi:10.1016/J.CRPV.2003.09.018